



SX Virtual Peripheral™ Library

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Type	Peripheral Name	Description	Memory Program Flash (Words)	Usage RAM (Bytes)	Number of I/O Used	Required CPU Performance % of MIPS@50MHz	Library File Name
Interface	I2C Slave	Works with the SX Demo Board to read from, write to, or erase the serial EEPROM memory device.	188	10	3	33	i2cs_vp.src
	I2C Master	Works with the SX Demo Board provided by Parallax to write to, read from, or erase the serial EEPROM memory device.	233	16	2	23	i2cm_vp.src
	I2C Multi-Master	Works with 2 SX demo boards on an M-Master I2C bus interfacing 2 SX's to serial EEPROM device.	440	26	2	45	contact sales@scenix
	SPI Master Interface (low-speed)	Add Low-speed SPI communication capability to the SX (up to 500 Kbps SPI Master).	102	11	5	varies w/ usage	spi_m1.src
	SPI Master Interface (high-speed)	Adds High-speed SPI communication capability to the SX (500K to 1.72MHz SPI Master).	74	13	4	varies w/ usage	spim.src
	SPI Slave Interface	Adds SPI communication capability to the SX (up to 1.1MHz SPI Slave).	108	13	4	varies w/ usage	spis.src
	2400-230.4K UART	A simplified software module that communicates over an RS-232 port to a PC and echoes back what is received. Compatible with the SX Demo Board.	51	10	2	.1 - 50	uart_vp.src
	Eight UART (19.2K Baud)	Configures the Port B pins as inputs and Port C pins as outputs for the respective UARTs. Offers an impressive example of the power of Virtual Peripheral™ modules.	308	55	16	13	uarts.src
Display	8-Bit LCD Interface	Interfacing an SX uC to a Hitachi HD44780-driven LCD display, using an 8-bit parallel data bus without interrupts.	120	2	11	2 when writing continuously	lcd8xmpl.src
	4-Bit LCD Interface	Interfacing an SX uC to a Hitachi HD44780-driven LCD display, using an 4-bit parallel data bus without interrupts.	109	4	8	2 when writing continuously	lcd4xmpl.src
	Driving 7 Segment LED	Binary to 7 segment LED converters.	29	0	11	Example Code	seven_seg.src
	LCD Driver	Uses two software A/D converters to read in a known resistance value, and compare it to an unknown, and then outputs the results on an 8-segment LCD.	280	21	15	Example Code	lcd.src
General	Stepper Motor Control	This routine excites the stepper motor using half-step sequence (the excitation method can be changed to any sequence you choose).	27	6	4	6	stepper.src
	16-Bit Timer	Creates two 16-bit independent timers. Each timer consumes only 11 instruction cycles. Compatible with the SX Demo Board.	20	8	2	8	timer_vp.src
	4x4 Keyboard Scan	Presents programming techniques for scanning a 4x4 keyboard, usually found in both consumer and industrial applications, for simple numeric data entry.	102	7	4	1	keyscan.src
	Real-Time Clock	Implements a real time clock that keeps a 16-bit millisecond count, and has the option for full time clock capabilities, including seconds, minutes, hours, and days.	39	9	0	5	clock_vp.src
	Push Button Debounce	Presents programming techniques for implementing and debouncing from 1-4 push buttons.	48	5	0	2	buttons_vp.src
	Fast-Fourier Transform	Implementation of a 16-point (16-bit signed real/complex data) FFT.	580	85	5	tbd	contact sales@scenix
	Math Pack	Programming techniques for performing commonly found arithmetic operations.	NA	NA	NA	NA	sx_arith.src
	Path Switcher	Demonstrates the use of a path switcher (combined with a simple real-time clock) to reduce the execution time of each interrupt.	7	0	0	2	buttons_vp.src

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A Virtual Peripheral™ is a software module which provides a specific function when running on the SX microcontroller. Due to enhanced throughput and predictable program execution flow, the SX device is capable of providing solutions using Virtual Peripheral modules that other microcontrollers can only provide in hardware or through external components. Using Virtual Peripheral modules on an SX provides software configurability, resulting in major benefits to your system cost, flexibility, and time to market.

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Connectivity	IrDA	Implementation of the lower levels of the IrDA protocol stack and the high level Ircomm protocol for a secondary device.	1992	71	10	45	contact sales@scenix
	UDP/IP/PPP	Implementation of UDP/IP/PPP networking stack.	1700	61	4	N/A	contact sales@scenix
	HTTP/TCP/IP/PPP	Implementation of HTTP/TCP/IP/PPP networking stack.	3200	100	4	N/A	contact sales@scenix
	SMTP/TCP/IP/PPP	Implementation of HTTP/TCP/IP/PPP networking stack.	3000	90	4	N/A	contact sales@scenix
	ISA to I2C	An ISA to single-channel multi-master implementation	380	20	16	70	contact sales@scenix
Telephony	DTMF Detection	Detects DTMF (touch-tone) digits within 14ms without error detection or within 48ms with error detection. Uses 2 pins.	295	52	2	40	contact sales@scenix
	DTMF Generation	DTMF Generation using 1 PWM output. Includes 1 UART for software interface with a PC.	89	15	1	5	dtmg_gen_1_3.src
	FSK Detection	Demodulation of an FSK signal using one pin.	42	6	1	4	simple_fsk_rcv.src
	FSK Generation	Converting an RS-232 input into an FSK modulated signal using one PWM output.	47	8	1	4	simple_fsk_gen.src
	Caller ID	Detects and demodulates the Caller-ID signal which appears between the first and second ring.	369	70	1	4	contact sales@scenix
	Ring Detect	Detects the ring signal from a telephone line.	19	3	1	6	contact sales@scenix
	Call Progress Detect	Provides detection of multiple-tone Call-Progress signals.	295	52	2	40	contact sales@scenix
	Call Progress Generation	Dial-tone generation using one PWM output.	89	15	1	5	contact sales@scenix
Signal	Artificial Sine Wave Generator	Sine Wave Generation utilizing one PWM output and an algorithmic approach to sine generation.	30	8	1	4	artificial_sine.src
	Dual 8-Bit PWM's	Software module that creates an 8-bit PWM signal on one output port pin. Compatible with the SX Demo Board.	10	5	2	4	pwm_vp.src
	Eight 8-Bit PWM's	Provides 8 PWM outputs on the PORT B pins. Each PWM is individually adjustable for different duty cycles (frequencies of up to 1MHz are available).	25	17	8	8	pwms.src
	Two 8-Bit ADC	Implements a simple 8-bit A/D converter on any CMOS input to the SX device. Compatible with the SX Demo Board.	25	7	4	8	adc_vp.src
	Sigma Delta ADC	Reading an external voltage by employing bitstream continuous calibration to create a simple, low cost 8-bit analog to digital converter with an input range of 0-5V.	25	7	4	8	adc_vp.src
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